

**Access to Microfinance & Improved Implementation of Policy Reform
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**Young Entrepreneur Issue Analysis on
*Education/Human Resource Development,
Business and the Jordanian Public School System***

Final Report

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YEA Position Paper

Education/Human Resource Development, Business and the Jordanian Public School System

Executive Summary

The Young Entrepreneurs Association (YEA) believes that improving worker skills is a major challenge as Jordan competes more intensively in a global marketplace that is becoming more and more knowledge-driven. Indeed, if the objective of *Jordan Vision 2020* and other nationwide initiatives is to enable Jordan to compete effectively in the marketplace of the 21st century, one important strategy to accomplish that objective is enhancing the critical skills base of the Jordanian workforce.

Recognizing this, the YEA has prepared a position paper on the leadership role it is prepared to assume on behalf of the business community to improve education and enhance critical human resource skills. The position paper is aimed at the Minister of Education and other leaders in the education community, the executive branch of government, Parliament, and other decision-makers and opinion leaders in Jordan.

Generally speaking, it contains government relations initiatives, and initiatives in the areas of school curricula reform and school-based technology that are predicated on cooperation between the business and education communities. In addition, it calls for the formation of task forces, comprised of members from business and education, to facilitate curricula and technological changes in Jordanian public schools.

Information technology increasingly defines the new global economy. Computer literacy, a requirement for competing internationally, is raising the demand for knowledge workers. The combination of academic, personal management, and teamwork skills are more essential than ever for enhancing international competitiveness and improving rates of economic growth, as is proficiency in English, the language of international business. These skills must be taught well and continuously improved upon in order for Jordan to make the successful transformation to an information-based, post-industrial society.

Over the long run, employers will increasingly seek workers who can adapt quickly to new tasks and market trends, creating a demand for employees skilled in knowledge-based industries that is even today outstripping supply. This development threatens to leave a growing number of workers in an increasingly vulnerable position, unless extensive changes are made in academic training to improve worker skills.

Over the more intermediate term (five to seven years), employers in the burgeoning information-based sector and in manufacturing will find it more and more difficult to attract workers with unique combinations of skills to adapt to new production and information technologies. This will be most unfortunate for the growth of Jordan's

knowledge-based companies, and its recently implemented industrial goods strategy that requires workers who possess increasingly sophisticated skills.

If Jordan is to become an information-based economy and compete effectively in the emerging world economy, it must upgrade worker skills by incorporating new ideas from employers, educators, government officials, students, and other major stakeholders across the country. No single company, educational institution, or group of workers can do the job alone. All parties must be fully engaged in the design and execution of educational program changes to upgrade human resource skills. Employers must provide learning opportunities, workers must adopt new ways of producing goods and services, students must devote time and energy to learning, and schools must teach marketable skills. Cooperation among these stakeholders will work most effectively when employers clearly define their needs, workers have a major investment in learning new skills, and educational institutions are attuned to market demand.

Clearly then, Jordan must have a strategy to improve worker skills that is agreed to by the business and education communities, and by the government, and it must have action plans flowing from that strategy, for *human capital* is the key Jordanian resource that can be continuously upgraded to meet the needs of the evolving global marketplace.

Significant strides have been made in recent years to upgrade worker skills by improving academic curricula and vocational training, but much more needs to be done, generally speaking, in terms of changes in strategy, structure, and budgets for education. It is time for new mechanisms to be established, and resources to be reallocated to meet new commitments affecting Jordan's economic future. It is also time for the business community to come together to explain, in a unified voice, what it needs from Jordan's educational community, how it is prepared to interface with educators and with government legislators and ministers, and the mechanisms for this interface.

Recognizing the need for greater cooperation with educators and with government, YEA is prepared to lead a business initiative to work with both to adopt policies and programs that incorporate the following components:

- modifying school curricula to enhance creativity, innovation, and critical thinking;
- enhancing the abilities of schoolteachers through professional training in English language skills, computer-aided instructional methods, and creative ways to utilize new technologies in the classroom; and
- introducing English language training, economic education, computer instruction, and Internet use beginning with the first grade.

A full discussion of concrete actions to implement these improvements in education to improve worker skills will follow from formal deliberations within the business community, and between business, education, and government. However, the YEA is prepared to begin a dialogue on this subject through comments and recommendations detailed in this position paper. Most of the recommendations are longer-term in nature, that is to say they will not bring significant positive results in the short-run. This is in

recognition of the fact that much work needs to be done to develop the critical skills needed for the jobs of the 21st century, information-based economy Jordan aspires to become. However, there are several short-term recommendations as well, actions that be undertaken right away that will bear fruit over the coming months.

The successful completion of the YEA initiatives, described below, will improve worker skills, enhance inward investment by multinational firms, increase Jordan's competitive position in world markets – all of which will help Jordan's societal transformation to an information-based economy.

Introduction

The history of the past two decades has shown that countries, particularly developing countries, that liberalize their economies by reducing government regulation and bureaucratic red tape, allowing market forces to operate more freely, and improving incentives to work, save, and invest, have been rewarded with dramatic increases in real per capita income. Economic liberalization has contributed significantly to the growth in exports by and imports to these countries, and has given further impetus to the rise in incoming foreign direct investment. Economic liberalization, therefore, has been important contributor to growth in world income and prosperity.

Another factor contributing to the substantial increase in world income and prosperity over the past twenty years has been the growth in economic interdependence, most notably evident in the volume and structure of trade in goods and services, patterns of direct investments, monetary and financial relationships, and business cycle linkages. Historically, interdependence had occurred more as a result of private decisions by large numbers of individuals and companies responding to market forces than from conscious government policies.

All indicators point to an even more rapid rate of technological change in the foreseeable future than the world has experienced over the previous two decades. Technology is sure to become an even more integral part of education, commerce, and culture. Further economic liberalization will make the world even more interdependent. Exports and imports as a percentage of gross domestic product will continue to rise, helped along by further reductions in tariffs and non-tariff barriers to trade in goods and services. Foreign direct investment will continue to grow, particularly in developing countries, as the trend toward globalization in product markets and factor markets continues.

The economy of Jordan will be no exception to these trends. The country has recently embarked on an economic liberalization program, including reform of its customs regime and options for privatization, and its opinion leaders and decision-makers recognize the need for, and are moving forward on, improving worker skills. Both developments will attract needed foreign direct investment and technology to Jordan. Its recent membership in the World Trade Organization (WTO) will make a major contribution to Jordan's plans for export-led growth, and will certainly increase the country's economic interdependence with its trading partners.

But economic liberalization, the rise in technological acquisitions, greater foreign trade and inward foreign direct investment, and membership in the WTO also mean that Jordan's producers and its workforce will face stronger, more intense foreign competition than ever before. How can Jordan succeed in the emerging global economy and, over time, complete its transformation to an information-based society?

Education Is The Key

For Jordan, the key to success in the global marketplace as an information-based economy lies in reforming its education system. Generally speaking, this means reforming the public school curriculum and infrastructure. There is no well-defined and tested method for countries to move from essentially agrarian and light manufacturing

economies to information-based, post-industrial societies. Many factors, such as economics, culture, and politics, play a role in shaping any post-industrial economy. For Jordan, these factors are certainly important as well, but education is the key. If Jordan is to successfully move from its agrarian and light manufacturing economy to a post-industrial society, opinion leaders and decision-makers in the public and private sectors must certainly address the subject of education, and sooner rather than later. What do workers need to know and what skills must they possess for Jordan to become an information-based economy and a successful competitor in the global economy? Is the present educational curriculum and infrastructure up to the task of training students for that society?

Jordan's ability to succeed as an information-based economy in the world of tomorrow, figuratively speaking, hinges, in large measure, on the answers to these questions. One part of the answer involves curriculum redesign, the other reforming the delivery infrastructure.

Education, therefore, is a critically important pathway for the upward social and economic mobility of Jordan's workforce, and for the attainment of its information-based economic goals. There is a broad consensus on the need for educational reform in Jordan for these reasons, but not much of a consensus on how to proceed. Proposals for reforms are numerous, but fragmented, and sometimes work at cross-purposes. Although it has an educated population, the skill and education requirements needed for Jordan to compete in world markets have changed. An educational system designed for an earlier time will not enable Jordan's graduates to compete in the world economy of the 21st century. Put another way, an educational system that is not working well today will not prepare its students for the world of tomorrow.

Jordan's education system must change in order to graduate students who possess the skill sets that will make them successful in the international marketplace. More specifically, Jordan's education system must produce graduates whose *critical* skills will position them for employment in the knowledge-based economy of the future. It is not so much a question of the need to fix something that is "broken" in the Jordanian educational system – although there is much of that to be addressed – but rather an acknowledgment that the global marketplace has changed, and that this change and the technological revolution in information gathering and processing is changing the way the world works, teaches, and learns. Some functional changes are necessary to respond to this new environment in an effective way.

Therefore, the question is, how to bridge the gap between the education system in place in Jordan today, and the one Jordan needs for the world of tomorrow?

Upgrading Critical Skills

The importance of upgrading the critical skills of the Jordanian work force was succinctly stated in the Executive Summary of *Jordan Vision 2020*:

The forces driving the dramatic changes experienced throughout the global economy are clear. Among other things, they include a heavy reliance on new

technology, especially related to information and computerization. The ability to adapt, innovate, and move quickly is also vital. In the new millennium, the most successful economies will be those that prove most effective in mobilizing a skilled workforce, deploying the latest in technology, and delivering quality products. Brains, not natural resources, will matter most.

There is a growing recognition among Jordan's business community, educators, government officials, and other stakeholders that improving critical worker skills is the greatest competitive challenge the nation faces over the next two decades. What, specifically, are critical worker skills? Critical worker skills are academic and personal management skills. While these skills are discussed in some detail below, suffice it to say here that they encompass effective written and oral communications skills, computational skills, proficiency in the use of computers, skills in applying academic knowledge to solve real world problems, and skills designed to encourage "out of the box" thinking, teamwork, and adaptability to swiftly changing conditions.

These skills need to be coupled with the unprecedented opportunities information technology offers. Information technology is rapidly becoming the defining feature of the international marketplace, turning computer literacy into a basic skill requirement and creating a demand for knowledge workers that is rising faster than supply.

The critical skills challenge facing Jordan is widely recognized. To overcome this challenge and participate fully in the emerging global economy, Jordan must develop and maintain a competitive, *evolving* educational system, attuned to developing academic and vocational needs that, in turn, are adjusted by changes in market demand for workers. What business skills, concepts, and applications are essential for all students to be successful in the workplace of the 21st century? What career paths should be considered, based upon emerging career opportunities? How will technology be infused into the curriculum?

These questions are not meant to suggest that education is solely, or even most importantly, for the purpose of meeting employer needs. But they do mean that being receptive to changing market demands, and graduating students prepared to work in the industries of tomorrow, will go a long way toward promoting economic growth and rising per capita incomes, reducing unemployment, and achieving the transformation in Jordan to an information-based society. Put another way, human resources are the key Jordanian natural resource that can be continually developed and upgraded to meet the changing needs of globally evolving industries.

Effective Partnerships

Having said this, there can be no viable policy or set of policy programs to upgrade the critical skills of the Jordanian workforce without the active engagement of the business community. The business community has an especially important stake in the success of such policies and programs from a social and an economic point of view. Indeed, it might be the most important long-term influence for educational reform.

Business involvement should be predicated on the proposition that the long-term economic development of Jordan is most dependent upon higher quality education in grades 1 through 12, and in the universities, colleges, and technical schools. Business must be willing to lead task forces comprised of its leaders, and leaders from education and government. It must be willing to study educational issues from all sides, and to encourage dialogue on educational reform to improve critical skills, develop consensus, and forge support for policies and programs aimed at reform. In short, as stated in the summary to this position paper, it is time for the business community to come together and explain, in a unified voice, what it needs from the education sector of Jordan, and how it is prepared to interface with education and the mechanisms for that interface.

This leads to a collateral point, partially made in the preceding paragraph, which is that no effort to upgrade the skills of the Jordanian workforce will be fully successful in the absence of a partnership between the business community, the universities and colleges, and the primary and secondary schools, and the active participation of each partner, both alone, and in concert with other partners, in efforts such as making the most effective use of educational technology in the classroom. Rich and meaningful experiences can result from business men and women collaborating with teachers at all levels to design and facilitate learning activities, integrating rigorous core curriculum content with real-world business applications.

One reason why business input is vitally needed is that Jordanian universities and colleges do not tend to focus nearly enough on courses that prepare their students for the world of work. Courses of study are not intended to graduate individuals who can readily respond to labor force requirements. Unfortunately there is, at the present time in Jordan, only a weak interaction between the education community and the business community.

Finally, upgrading worker skills can only succeed if classroom teachers, school administrators, and the government's education ministry agree with the business community and higher education on a series of policies and programs each will pursue in the coming years – in effect, a partnership of those constituencies involved in teaching students and/or employing them upon graduation. The partnership should foster the acquisition of employability skills, advance literacy in science, technology, and mathematics, promote the development and enhancement of teacher knowledge and teaching skills, expand vocational, technical, and apprenticeship training, and integrate classroom and on-the-job work experience. It should also include removing barriers to innovation in the schools, and increasing research to determine what works in particular classrooms that can then be applied to classrooms nationwide.

Critical Employability Skills

What are the critical employability skills required of its workforce if Jordan is to compete successfully in the global economy? The critical employability skills are generic skills, attitudes, and behaviors that employers look for in people new to the workforce, and that they develop through training programs for current employees. Specifically, they are comprised of academic, personal management, and teamwork skills. In the workplace, as in school, these skills are integrated and used in varying combinations, depending on the nature of particular job activities.

More specifically, they are composed of the following:

Academic skills are those that provide the basic foundation to get, keep, and progress on a job and to achieve the best results. They consist of:

- communication skills (such as understanding and speaking the languages in which business is conducted, effective writing, and comprehension of charts, graphs, and other technical forms of displaying information); and
- thinking skills (such as thinking critically and logically to evaluate situations, solve problems, and make decisions, understanding and solving mathematics problems and using the results, using technology, instruments, tools, and information systems effectively, and the ability to apply specialized knowledge from various fields such as skilled trades and technology).

Personal management skills are the combination of skills, attitudes, and behaviors required to get, keep, and progress on a job and achieve the best results. They consist of:

- positive attitudes and behaviors (such as self-esteem, honesty, and initiative);
- responsibility (setting goals and priorities, planning and managing time, and accountability for actions taken); and
- adaptability (such as identifying and suggesting new and creative ideas for doing things differently, and maintaining a positive attitude toward change).

Finally, there are *teamworking skills*, those skills that are needed to work with others on a job to achieve the best results. They consist of:

- working with others (including using a team approach to problem solving, understanding and contributing to an employers' goals, and planning and making decisions with others).

Faced with sweeping economic changes affecting its economy, it is generally recognized that Jordan needs to enhance the critical employability skills of its workforce through improvements in academic and vocational education. The present system of instruction in these critical employability skills is not sufficient to prepare students and workers for the challenges of the 21st century and a working life characterized, to an increasing extent, by high technology and rapid change. The interest of the business community is in ways the present system of instruction can be improved, recognizing, of course, that education at all levels of society is the shared responsibility of government, schools, students, and the business community.

The YEA believes that the present system of education *can* be improved in the following ways:

- modify school curricula to enhance creativity, innovation, and critical thinking;

- enhance the abilities of schoolteachers through professional training in English language skills, computer-aided instructional methods, and creative ways to utilize new technologies in the classroom; and
- introduce English language training, economic education, computer instruction, and Internet use, beginning with the first grade.

Other decision-makers and opinion leaders agree with YEA's assessment. For example, the National Educational Conference in September 1999 recommended similar changes in the education system, and other, broad-based initiatives over the years have also mentioned these and similar goals for education. What for the most part has been missing, however, is a *shared vision on specific recommendations for action*, for achieving these and other education-related goals. And this, in turn, must be based on shared or aligned objectives that support the goals of each of the stakeholders.

YEA intends to lead a business community initiative to work in partnership with government and the education community to develop and implement a series of specific recommendations for action.

In the remainder of this position paper, YEA discusses its initiatives under a series of headings. For each heading, it recommends specific action items for consideration, first by the business community, and then, if consensus emerges, by education and government. It also makes a series of recommendations, with action items, pertaining to vocational education.

English Language Skills

The most *widely spoken* language is English. To conduct business around the world, men and women must be able to communicate, and it is increasingly the case that English is becoming the language in which that communication takes place. Partly as a result of the dominance of England in the 19th and earlier periods of the 20th century, and of America over the past five decades, English, therefore, has emerged as the predominant common language, or *lingua franca*, of international business.

People who speak different languages often communicate in English. The English language is widely taught in elementary and secondary schools in Europe and Japan, and indeed throughout the world. It is used as a common means of communication in countries where different native languages are commonly spoken (such as India and Singapore). Multinational corporations whose managers span the globe have adopted English as the official corporate language. Commerce and other cross-border associations can be conducted much more easily with others who share the same language. With the globalization of the world economies, English has become the "international" language for trade, travel, training, and industry.

When a second language is studied, it is usually chosen because of its usefulness in dealing with other countries. American English words are being added to language worldwide, partly because U.S. technology develops so many new products and services

for which new words must be coined. Language serves a number of distinct roles in international business. It is important in information gathering and evaluation. Non-English speakers, for example, are at a marked disadvantage when using the World Wide Web, because the Web is overwhelmingly English – perhaps by as much as 90 percent. Information on the Web is provided mainly free of charge, so there has not been, nor is there likely to be, a market for translation services into other languages.

In sum, the dominance of the English language throughout the world gives those who understand English a strong advantage in international commercial dealings. Developing country governments increasingly realize the need for their citizens to communicate in and use English to be competitive internationally.

For its part, Jordan has announced a plan to introduce English language training in the public schools beginning in the first grade, an initiative that the business community enthusiastically applauds. In teaching English to a now expanded student body, government should encourage the purchase and use of English language books, and computer and Internet use in the classroom to improve student and teacher understanding of the English language. It should also employ English as a Second Language (ESL) instructors, and adopt innovative approaches, such as English immersion classes and non-traditional teaching aids like English language videos, plays, and similar pedagogical devices. Concomitant with that initiative, the government should continue to use, and improve upon where possible, the use of functional English in everyday life, and to exhort the non-governmental sectors to do likewise.

Having said this, it is commonly accepted that setting up a high-quality English program takes time and involves planning, curriculum development, and hiring and training of appropriate staff. Without a sufficient supply of English teachers, Jordan will fall far short of substantially improving the English language skills of students in primary and secondary schools. Therefore, the first step is to train more teachers of English in Jordan's schools.

To improve English language training in Jordan, the YEA plans to undertake the following specific actions:

- *Working in conjunction with Jordan's universities and colleges, YEA will develop and implement a government advocacy program to provide teacher training incentives for current teachers to switch into English language teaching, and for university/college students who plan to teach English upon graduation. These incentives will also be extended, on a smaller scale, to current or prospective teachers who demonstrate that they have integrated English into classes they teach in other subjects. These incentives will include differential pay scales for teachers of English, tuition remission for English language training, and stipends to attend English classes, to mention three specific recommendations.*
- *YEA will establish a school, supported by the private sector to improve the English language skills of public school teachers. The school will utilize English immersion teaching techniques, ESL instruction, and non-traditional tool for teaching the English language, such as film.*

- *YEA will develop an advocacy program to convince the Ministry of Education to recognize these private sector courses and to include them in evaluations of teacher performance for pay and promotion purposes. That advocacy program will also include a component for promoting the adoption of the YEA private school teaching method by the public schools.*

Economic Education

There is an urgent need to expand economic literacy within Jordan. Graduates entering the workforce cannot function effectively without a thorough grounding on the economics of how the world works. Students need an educational program in economics that addresses profits, competition, productivity, international trade, and investment in business, and incorporates economics into such courses as mathematics, history, government, geography, and arithmetic, to mention just a few.

Simply put, economics should be moved from an optional course, taught sparingly, if at all, to one that is integrated within the K-12 curriculum. In this manner, students can receive training in the basic skills needed to be good workers, consumers, savers, investors, and citizens, through an understanding of the basic principles underlying the Jordanian and the world economies.

YEA proposes three specific initiatives in the field of economic education:

- *The first is to develop a formal working relationship with the Economic Opportunities Youth Program (INJAZ). The INJAZ mission, to improve the human capital skills of Jordanian youth between the ages of 14 and 24, has several programs within which YEA members can play an important role. Specifically, YEA will adopt key parts of the INJAZ mission and goals relating to economic education. YEA members will provide classroom lectures on business and personal economics, entrepreneurship, business leadership, and other relevant topics to students in those schools that are part of the INJAZ program through the INJAZ Corporate Consultant Program. They also will provide internships to students who are part of the INJAZ program. Finally, YEA members recognize the limited nature of the INJAZ program that is, at the moment, extracurricular, after school, and in a tiny fraction of the nation's schools. To remedy this situation and make INJAZ a much more effective operation in a shorter period of time, YEA will develop and implement an advocacy campaign directed at government officials and the business community to include INJAZ training as part of the everyday school curriculum for all Jordanian students.*
- *Second, as background information for, and support to, its government advocacy program on behalf of introducing economics into the curriculum of Jordan's schools, YEA will commission a nationally recognized polling firm to survey and evaluate student and adult understanding of basic economics principles. It is expected that the poll results will provide the information necessary to show that Jordanians are receptive to, and in need of, further economic education.*

- *YEA's third proposed initiative is separate and distinct from INJAZ, but will be extremely helpful to INJAZ and similar efforts to improve economic literacy among Jordanian youth. Specifically, YEA, utilizing experts from business and the universities, will provide a series of free, day-long training sessions to academic and vocational education teachers on personal and business economics, the market economy, globalization, and entrepreneurship. Teachers who are knowledgeable about these subjects are in a better position to provide economic information to their students and to integrate economics into their academic and vocational education classes. In addition, teachers must supplement their lectures with good instructional materials. In this regard, YEA, working with local universities and colleges, will commission a review of those course materials (books, slides, videotapes, and other teaching aids) now available to instruct Jordanian students in economics, with a view toward making those already sound instructional materials more readily available to Jordanian teachers, and creating instructional materials where critical gaps now exist. A plan to provide materials free of charge for school libraries and for classroom use will be developed and implemented by YEA.*

School-Based Technology

Technology has fundamentally transformed the way people live and work. It is used in all kinds of jobs, and employers expect workers not only to master basic technology use, but also to use technology creatively to improve bottom line results. Futurists predict that today's students will be successful in the world of work in the coming decades only if they are technologically literate. They must know how to think and use technology as a partner in their work. In other words, they must have a solid understanding of how technology works and of what it can do. And they must have mastery of basic skills, such as reading, writing, and mathematics, because technology has few benefits without basic skills. This is true not only for work in the office, but also for work in the plant, in agriculture, and in the service sector. Jordanian schools, therefore, must provide students with the best of traditional learning, but also with the unprecedented opportunities that technology has to offer.

It is necessary to promote and develop instructional uses of technology – school-based technology -- in all disciplines and at all educational levels, from preschool through college and university training. While school-based technology comprises many things, computer hardware and software, Internet use, and distance learning usually define the term. Teachers and students use school-based technology to read, write, compute, and learn about the world around them. To justify the expense of increasing the number of computers in schools and their use in the classroom, educators and government must understand how these tools fit into classroom instruction, and teachers must be trained in using them.

Jordan has recently embarked on an effort to increase the number of computers in the public schools, which generally have few, and often obsolete, computers for many students (an estimate of the present computer to student ratio is 1:120 for public schools). Computers are usually organized in labs and therefore not incorporated into classroom instruction, often used as typewriters because they are not integrated with other computers inside and outside the schools.

While increasing the number of computers in the public schools is overdue and certainly welcome, one must question whether there is a coherent plan behind the introduction of computers, whether computers are being integrated into classroom learning, and whether teachers are embracing them. The key question, in other words, is not the number of computers available in the schools, or even what students and teachers do with the computer hardware and software. Rather, it is: What is the cumulative effect of computers and their use on the performance of individual students?

Unfortunately, very few public school classrooms are equipped with state-of-the-art computers or are connected to the Internet, and few teachers are computer literate. Many teachers, due to a lack of training, do not understand computers and their applicability to classroom instruction, and remain reluctant to use them until they understand them better and can be shown how computers improve the reading, writing, and numerical skills of their students.

Jordan's schools are in the earliest stages of relating technology, in the broadest sense, to the educational environment. There are few educators using technology in the classroom, and therefore few proponents of the value of educational technology. And initial investments to bring computers and other technology into the classroom are only now underway.

Well-trained teachers are the keys to the successful integration of technology into the classroom. However, teachers cannot and should not be expected to master technology overnight. To move from being novices to an understanding of the benefits of technology, most current teachers require initial and then ongoing professional training. Future teachers must receive technology education in their college and university training, and barriers to professional development, including access to technology and insufficient time available to master it, must be removed. The goal in technology adoption within the Jordanian school system is to have technology integrated as a relevant tool for teaching and learning. – that is, computers must not only be in school labs, but also in school classrooms, functioning as a tool to assist teachers in imparting knowledge in all subjects.

Technology allows schools to move from traditional to innovative learning environments. Traditional learning environments are characterized by such factors as teacher-centered learning, single sense stimulation, single media use, isolated work, and passive, knowledge-based, factual learning. Innovative learning environments, on the other hand, feature student-centered learning, multi-sensory stimulation, multimedia use, collaborative work, and critical thinking and informed decision making based on authentic, real world contexts.

Technology is not a cure-all for the problems besetting the educational community in Jordan, but it can improve student performance when used effectively. For example, it can be used to teach higher order thinking skills in the middle grades, and can facilitate and reinforce project-based learning by allowing students to work together to research, analyze, and solve problems in a creative fashion. Indeed, interest among students can be stimulated through projects that school teams develop, competing against other teams on

a nationwide basis. Computers can also improve fluency in basic skills, and reinforce concepts already learned. In sum, technology can enhance and reinvigorate education, making schools better places for students and teachers, but it will only do so if it is available in the schools, and if teachers are empowered to use it effectively.

There are eight steps that will improve not only teacher facility with computers, but also the integration of computers into classroom instruction:

1. Developing a mission statement for computer use in the schools that focuses on a few clearly defined goals that will receive special attention.
2. Encouraging partnerships between Jordanian institutions of higher learning and the country's basic education (1-10) and secondary education (11-12) schools, so that teachers can be trained to become school-based leaders in technology, serving as local experts, trainers of other teachers, and change agents.
3. Creating a technologically literate teaching force, measured by the ability to use a variety of software packages, through formal and informal training sessions funded by the Ministry of Education (and the Vocational Training Corporation for additional vocational use), bearing in mind the maxim that whatever is spent for equipment, an equal amount should be spent for training and maintenance.
4. Sharing educational "best practices," through face-to-face meetings of Jordanian and American educators and businessmen, and through video-conferencing and distance learning, to facilitate the exchange of educational practices and experiences in the use of technology for education.
5. Undertaking a comprehensive survey of computer use in Jordanian schools to fill in gaps in existing knowledge. Specific questions would include the types of hardware and software tools in use in the classrooms, the extent to which computer systems are employed for administrative tasks, user opinions on the effectiveness of hardware and software, the acceptable student to computer ratio, the role of computers in the classroom (that is, central teaching tool versus auxiliary tool), recommendations on the extent to which computer usage must be increased, and cost estimates to accomplish this.
6. "Incentivizing" the educational system by paying higher wages to computer teachers in short supply in order to attract university students into this profession and to keep them there.
7. Expanding computer literacy in vocational education and training. Computer literacy will soon become necessary for all workers in skilled and semi-skilled industries. Students in vocational education learning and training centers need a basic understanding of computer technology, and the use of various standard applications as a base for more advanced skills development. And,
8. Encouraging the private sector to work with the Ministry of Education to offer field trips to businesses that make extensive use of computers, so that teachers and students

can see the growing importance of computers in the conduct of day-to-day business operations, and the relevance of computer training for the new world of work.

YEA has four proposed initiatives in the area of school-based technology:

- *The first relates to providing an incentive for public school academic and vocational education teachers in grades 1-12 to undergo computer training and to facilitate computer use in the classroom. That incentive is to provide teachers, subject to certain conditions (completing a university/college level course on computer hardware and software under the supervision of selected Jordanian colleges and universities), with computers for personal use. While there is a government initiative to begin providing an increasing number of computers for schools, there is no accompanying program for getting teachers trained in and involved with computers. Teachers who become familiar with their own personal computers will be more likely to understand how computers can support projects they want their students to do, particularly those that support group learning, teambuilding, and creative and innovative thinking. YEA will develop and implement an advocacy strategy that calls for public funding of this initiative.*
- *The second initiative relates only to the business community, and involves a campaign to donate computers to public schools. Specifically, through a task force comprised of Jordanian business associations, YEA will collect surplus business computers and develop a plan for their distribution to the country's public schools.*
- *The third initiative, also exclusive to the business community, is the establishment computer training centers in selected populated areas of Jordan. These centers will provide, free of charge, computer instruction to children who attend public school.*
- *The fourth initiative involves a government advocacy program to encourage the introduction of Arabic software. In providing computers and accompanying software to the public school system, government should use the opportunity to strengthen teaching in the Arabic language.*

Modifying School Curricula

The term "curriculum" encompasses the content, structure and processes of teaching and learning, which the school provides in accordance with its educational objectives and values. It includes specific and implicit elements. The specific elements are those concepts, skills, and areas of knowledge and attitudes which children learn at school as part of their personal and social development. The implicit elements are those factors that make up the ethos and general environment of the school. The curriculum in schools is concerned, not only with the subjects taught, but also with how and why they are taught and with the outcomes of this activity for the learner.

The way in which the curriculum is defined, planned, implemented and evaluated crucially influences the quality of education provided. The proper management of the curriculum should be such as to ensure the quality of provision in schools, that is, to provide students with a range of understanding, knowledge, skills and attitudes best

suited to their personal development, and to enable them to make a productive contribution to the society in which they live.

It will be necessary to substantially modify public school curricula in Jordan to enhance creativity, innovation, and critical thinking. In the traditional model of classroom instruction, teachers transmit a fixed amount of information to students, whose performance is then judged by their ability to absorb and repeat that information. This rote learning, “chalk and talk” model was sufficient for agricultural societies or industrial societies characterized by mass-production techniques, where the ability to perform narrow tasks defined by central authorities in an established chain of command was a critical skill to learn.

This method of instruction, however, will be increasingly outmoded as Jordan prepares to transform its economy to one that is information-based, where the *state of the art* changes quickly, and workplace supervision is less important (due to telecommuting, worker empowerment and fewer managers). Employer success will become less dependent on workers who individually follow orders well, and more dependent on those who: possess facts, concepts, and theories appropriate to the problem being studied; are able to elaborate their findings in written and oral form; and who have the ability to work collaboratively to determine for themselves what should be done. Consequently, classroom instruction in Jordan must move beyond the teacher-centered model and toward an *inquiry-based* approach that emphasizes *how* to learn more than *what* to learn. Unfortunately, Jordanian public schools are designed to support the older method of classroom instruction.

Other curricula changes are needed in teaching and learning as well. Career guidance counselors in sufficient numbers should be fixtures in every public school. Computers and the Internet should be tools for learning in every classroom. Indeed, once computers are introduced into the classrooms, computer literacy should become a basic requirement for graduation, and for teaching in the public school system. English language studies and mathematics and science instruction must be reformulated in terms of content, instructional strategies, and time devoted to their study. Student learning of these and other subjects would benefit from changing the curriculum to encourage integrating courses in a variety of content areas. This strategy is more akin to real-world problem solving, where individuals draw on knowledge from many areas that cut across many disciplines.

Students would also benefit from the introduction of subjects that enhance critical thinking (particularly in the early grades where the foundation for cognitive skills, attitudes and values essential for creative thinking and innovative learning are established) and academic and technical information more attuned to the needs of business. This will go a long way toward removing the shortage of skilled workers the business community now faces and expects to face to an increasing extent in the next two decades.

Finally, decentralizing school decision-making in Jordan offers promise in terms of improving student performance. It produces more appropriate school policies and practices because teachers have a greater say in teaching and learning. They have more

information on what needs to be done because they are closer to the students than a central administration can be. Empowering teachers to control their working conditions is likely to increase their productivity, commitment, and creativity, because they will become more responsible for the decisions they make.

YEA has five proposed initiatives for modifying school curricula. The first is general in nature:

- *YEA will establish and staff an education committee – a Shadow Committee, -- composed of representatives from the leading business associations in Jordan. The education committee will meet quarterly to review and comment on the education policies and programs of the key deliverers of education in Jordan and on the initiatives of other groups, on the general pronouncements of government with respect to education, and on developments concerning Jordan's private schools. It will inform the public of the activities of the education community through a quarterly report that will be disseminated to the print and broadcast media, because public understanding and involvement can only improve the delivery of academic and vocational training in Jordan. It will also suggest actions to improve education in general and school curricula in particular through initiatives led by the private sector, and will use this venue to inform the public of the changing skill requirements of business. It will lend support to those reform initiatives now underway within the Ministry of Education, the Vocational Training Corporation, and other bodies, such as the earlier introduction of English language and computer skills.*

YEA's second and third proposed initiatives are specific in nature:

- *It will host, on behalf of the business community, an initial meeting of selected representatives from business, primary and secondary education, the universities and community colleges, and the research institutes to develop an action plan for strengthening the relationship between these groups. It will develop a working group to carry through, including government advocacy when called for, the recommendations resulting from the initial and subsequent meetings of this group.*
- *It will establish a nonprofit, nonpartisan public policy research Institute (think tank) with business community funding that seeks innovative, private sector solutions to problems related to education, and to the development of human resources in Jordan. An example of the Institute's research could include a study the variety of school improvement proposals being developed in other countries that focus on the quality of work students do and on what they know (such as block learning, core curricula that focuses on information a student should know to thrive in the modern world, integrated learning, and decentralized decision making), as well as on schools as part of the social surrounding (community service, for example). The Institute will publicize its findings to government decision-makers, opinion leaders, journalists, business and community leaders, and the general public.*
- *It will develop an advocacy program to require the Ministry of Education to introduce career guidance counselors in Jordanian public schools. Guidance counselors will work with students to develop alternative career paths before going*

on to university/college, further vocational and technical training, and the work world.

- It will create a formal apprenticeship program for secondary school 11th and 12th graders to gain practical experience in agriculture, manufacturing and service industry businesses.

Vocational Education

Although the main focus of this position paper is on academic reforms, there is also a need to accelerate the process of reform in Jordan's vocational education and training. Reform here will not only provide students with specialized training in particular fields, but also with concepts and theoretical knowledge to integrate theory and practice to meet the future needs of employers.

Vocational education providers in Jordan must design and implement a system of training that is more responsive to economic, technological, and industrial changes than it has been thus far. Jordan has been implementing a concerted industrial goods strategy which, if successful, will mean that the demand for industrial workers who possess more sophisticated skills will grow significantly faster in the foreseeable future.

Although vocational education reform is not the focus of its attention at the present time, the YEA notes four areas in which the delivery of vocational training can be improved. They are:

- reducing/removing rigidities in responding to the needs of the labor market;
- eliminating structural overlaps between the Ministry of Education (MOE) and the Vocational Training Corporation (VTC);
- reforming curricula to better respond to labor market requirements; and
- more efficient use of vocational training resources.

All stakeholders in improved vocational training understand the need for these changes. Unfortunately, they differ in their vision for change and, consequently, in the policies and programs to promote change. With this in mind, YEA recommends that business form a task force comprised of its members and members from the vocational education community to develop and implement action plans for improvements in the delivery of vocational education in Jordan. YEA would be pleased to join the task force and contribute its resources to effecting change in this area.

Upgrading School Infrastructure

The preceding pages identified a number of initiatives relating to such topics as critical employability skills, English language training, computer and Internet usage, economic education, and the like. They referred to the need to reform school curricula, introduce school-based technology, reform vocational education, and to the importance of

partnerships to accomplish all of these tasks, partnerships within the business community, partnerships between business and the universities and colleges, and with the education establishment and the Education Ministry. None of this will be particularly successful -- or successful at all -- without a reform of public school infrastructure. To put it bluntly, Jordan needs to put the horse before the cart.

Broadly defined, what does improving school infrastructure mean? Among other things, it means:

- proper heating and sanitary conditions and safety for students within the public school system;
- smaller classroom size, desks for each pupil, a focus on extracurricular activities as a learning experience, the introduction of non-traditional elective classes, larger libraries and state-of-the-art scientific laboratories;
- modern school buildings that provide access for disabled and handicapped students and teachers, and that, in general, are properly designed to provide the setting within which innovative teaching methods, such as technology-based learning, can be employed;
- community involvement to improve school conditions, and local parent-teacher associations to recommend corrective actions to improve student and teacher performance;
- stronger teacher skills, with promotion, advancement, and dismissal a function of performance-based criteria such as teaching competence and successful completion of continuous education courses;
- higher teacher salaries as an incentive to choose teaching as a profession, or to stay in teaching if already there;
- differential salaries to attract more teachers in subjects where they are now, or are expected to be, in short supply;

Nothing should be more important to the future of Jordan than school-aged children attending good public schools. Unfortunately, these students today are not well served by the physical plant administrators and teachers have at their disposal, nor by a teaching profession demoralized by low pay and poor working conditions.

Take but one example – technology. Technology, certainly in the form of computers, but also television, video recorders and other technology-based visual aids, is a powerful tool for communicating information and for bringing a new and exciting dimension to learning. But the introduction of technology meets with a great deal of bureaucratic and public resistance. Resistance comes in the form of funding for teacher training and ancillary equipment needs, for the costs of purchase, maintenance and upgrading of equipment, for the proper physical plant in which the technology is located and used. Resistance also comes from other programs within the school system and within society

in general competing for scarce government resources. Overcoming resistance requires public understanding, which gives rise to the need to undertake a public policy advocacy program for technology that must be successful before technology can be used to teach Jordan's school-aged children.

Some may believe that mandating, in some fashion, that a fixed number of computers will be introduced by a date certain solves the computer problem. Actually, however, this should be the last step in a long process, not the first and only step. Other questions must first be raised and successfully answered about computer usage, a few of which are as follows: What building facilities (and wiring and ancillary facilities) exist or are needed to support the introduction of computers? Who will be responsible for implementing, maintaining and sustaining the requisite hardware and software, and how will that decision be made? What hardware and software specifications are necessary, and who decided? Who will design and implement a professional training program to teach the teachers of computers, and those who will use computers in their classroom instruction? How much should be spent on "boxes and wires," versus money spent on staff development?

In one way or another, these are all infrastructure questions that must be tackled successfully. The business community can play a pivotal role in providing computers, but government must provide the proper physical plant. Business can assist in training the teachers, but government must increase the pay and better the working conditions of teachers. Business can help with improving public understanding by working with the public to develop a vision for the implementation of computers in the classrooms, but only government can change existing laws and regulations and pass new ones to provide the proper setting within which computers can become a powerful tool for learning in Jordan's schools.

YEA has two proposed initiatives in this area:

- In conjunction with other business associations, it will conduct a public awareness campaign on the importance of infrastructure improvements to educating Jordan's public school students.
- It will study existing laws and regulations pertaining to school infrastructure, and from the results of that study, create a government advocacy program with a view toward initiating, removing, and modifying them to improve school infrastructure.

Concluding Remarks

The goals described in this position paper, and the specific recommendations to achieve them, are admittedly ambitious. Most of them are longer term, which means that significant results will not be evident for a number of years. Some in business, education, and other constituencies may at times grow impatient, and may look for quick successes to which they can point. By and large, however, significantly raising the quality of education, and the improvements in critical skills that will follow, is not amenable to "quick fixes". Simply put, it will be a long, tough road, but the effort will ultimately be successful if all stakeholders participate.